

Near-term Climate Risks to Transition Supply Chain Logistics



TUE 28 JAN, 2025 09:00-13:00 Royal United Services Institute, 61 Whitehall, London, SW1A 2ET

Summary

Climate impacts in the 2020s will increase the frequency and impact of disruption to mineral supply chains. TMP's data indicates that 62% of the EU's largest single supplier of copper ore, to take one example, travels via routes that are highly exposed to intensifying rainfall over the next 5 years. Risks to production, processing and logistics in the near term are widely underappreciated because mainstream climate data is focused too far ahead.

Rapid action can help to avoid and manage these risks, but clarity is needed to target it effectively. TMP is working with industry representatives like Anglo American, media partners such as Nikkei, international institutions like the IGF, and security experts like RUSI and the Atlantic Council to provide that clarity and drive urgent, targeted actions to build resilience for transition mineral supply chains.

This event will focus on the risks to logistical networks for transition minerals in the wind power supply chain, and what actions leaders can take to manage these risks. Participants from industry and government will benefit from actionable intelligence on hotspots and drivers of supply chain risk based on TMP's unique climate modelling, while shaping strategies that secure consistent and affordable access to these critical materials.

Background

The UK's transition plans require the installation of at least [28 GW of additional offshore wind capacity by 2030](#). Reaching this target will depend on mineral supply chains which [TMP's data show](#) are at growing risk from climate impacts in the next decade.

Extreme weather is already disrupting key routes and logistics hubs on which the energy transition depends, driving up costs for logistics companies and maintaining inflationary pressure on prices. This poses a particular challenge in the context of tightening restrictions and increasing strain on supply chains from geopolitical factors.

The potential for wider losses when climate events coincide with other risk factors is substantial. The combined effects of the Red Sea crisis and the reduction in traffic through the Panama Canal due to drought, for example, was estimated to have caused \$1.25 trillion in [global economic damage](#).

TMP's forthcoming analysis focuses on how the intensification of extreme weather events at key routes and hubs for copper and permanent magnet supply chains pose risks to the UK and European offshore wind industries, illustrating how these risks could impact

businesses and governments while disrupting the energy transition through delays, reduced mineral access and increased costs. The report will be provided to participants two weeks in advance of the event.

TMP's analysis identified four areas where climate-driven supply disruption may have globally significant impacts:

- Latin American copper export routes,
- The Lobito Corridor for central African copper exports,
- Key routes and ports for Chinese permanent magnets, and
- European import routes and connections between manufacturers.

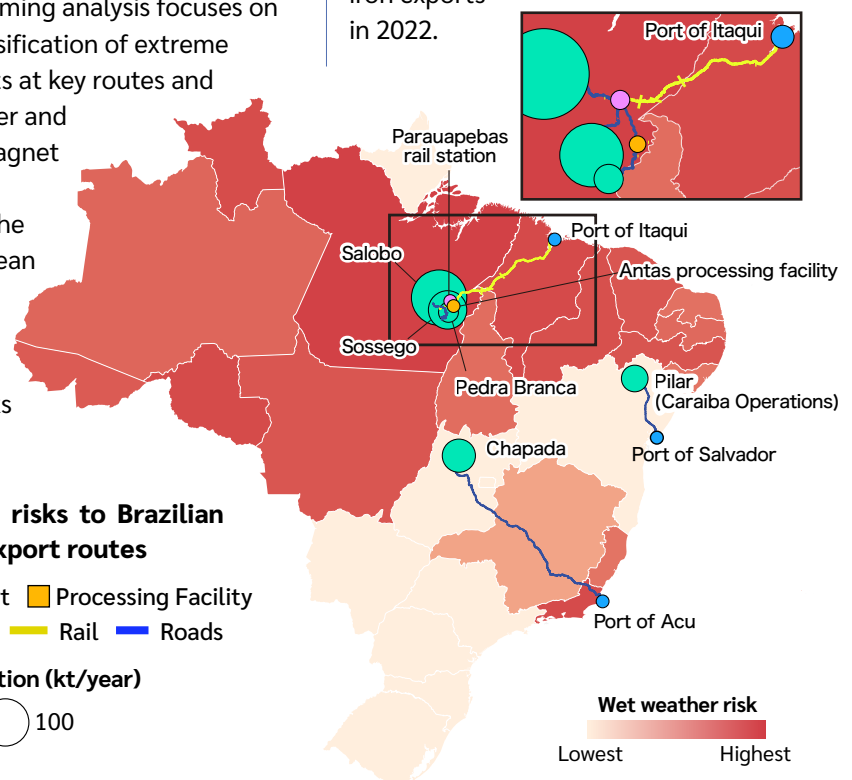
In Brazil, for example, routes between the three major copper mines in Para that produce 62% of national output and their nearest port are in the top 3% and 10% globally for risks of increasingly extreme rainfall, which threatens the same kind of flooding that disrupted iron exports in 2022.

Precipitation risks to Brazilian copper ore export routes

■ Mine ■ Port ■ Processing Facility
■ Rail Station ■ Rail ■ Roads

Copper Production (kt/year)

○ 10 ○ 40 ○ 100



Downstream, routes to and from generator manufacturing facilities are also exposed to these kind of risks: Swiss company ABB's generator manufacturing facility in, Estonia, for example, is in the global top 10% of regions exposed to increased precipitation.

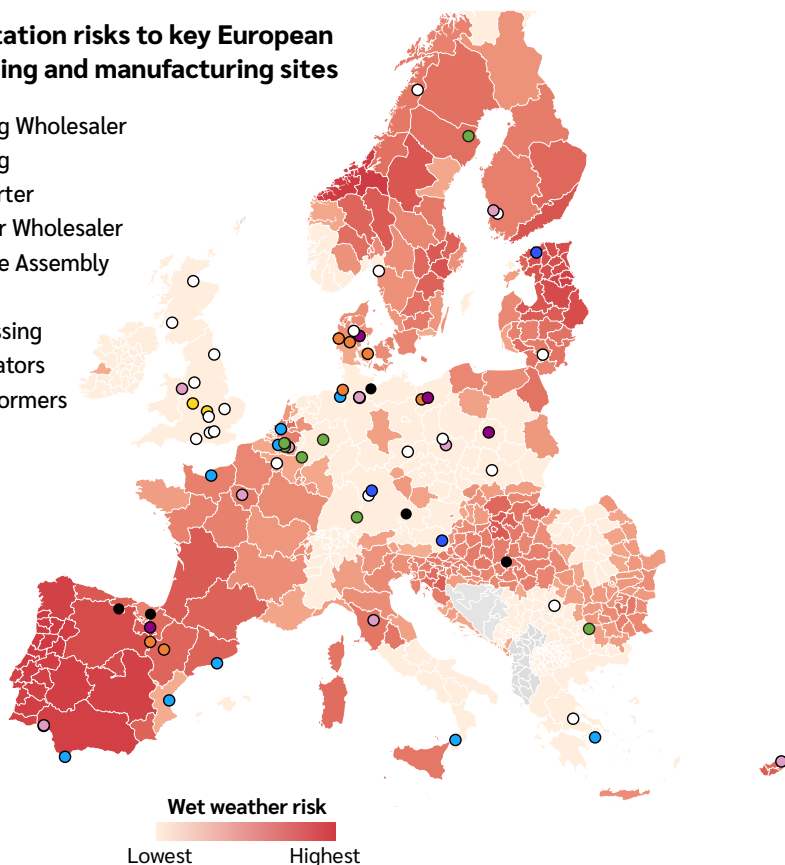
What will the event involve?

This event convenes public and private leaders in the energy transition to deepen understanding of near-term climate risks, and to support the development of coordinated, effective and targeted solutions that accelerate a rapid and smooth energy transition.

The event consists of two sessions, each beginning with insights from TMP and a guest expert before opening up to a roundtable discussion. In the first session, participants will be asked to contribute their own perspectives on the potential impacts of climate-driven disruptions as described in the report. The second session will focus on actionable solutions to address these risks and improve supply chain resilience.

Precipitation risks to key European processing and manufacturing sites

- Cabling Wholesaler
- Cabling
- Converter
- Copper Wholesaler
- Nacelle Assembly
- Port
- Processing
- Generators
- Transformers



Agenda

09:00-09:15	Introductions
09:15-10:45	Session One The problem: climate risks to OSW supply chains Guest speaker: TBC
10:45-11:15	Break
11:15-12:45	Session Two Solutions: Coordination among industry and governments Guest speaker: Fiona Clouder , former diplomat and ambassador, Latin America and mining expert
12:45-13:00	Closing remarks
13:00	Lunch at RUSI

This is the second in a series of events that TMP is hosting with RUSI. In July 2024, we used our data as the basis for [two scenarios exploring climate risk to transition mineral mining and processing](#). These scenarios were explored with policy makers from across UK and international government departments.

Our next event, in H2 2025, will explore the financial impacts of disruption to transitional minerals on markets, specific industries and macroeconomic conditions, providing a clear picture of potential disruptions and delays to the energy transition.

About TMP

TMP is a group of dedicated experts focused on the complex social, environmental and security problems linked to near-term climate change. Our mission is to help stakeholders prepare for cumulative climate change impacts in the 2020s, via charitable and commercial projects with governments, businesses, and civil society.

Our three-year [transition minerals](#) project, funded by the Hewlett and Quadrature Climate Foundations, draws on partnerships across 15 countries to build mineral supply chain resilience and ensure ongoing access to the minerals essential for rapid decarbonisation.

We provide unique data and insight to key decision-makers, catalysing action and cooperation on adaptation and resilience at a time of growing global geopolitical tensions. Events like this one enable us to provide data and insights that meet the specific requirements that participants have identified as being both important and where we can make a meaningful contribution.

RUSI Climate and Security Programme

RUSI is an independent defence and security think tank with a global reputation for its research. Through its Climate and Security Programme, RUSI is engaging with several strands of climate-linked security research: energy and security, anti-corruption in green markets, and geopolitics and geo-engineering. More broadly, the institute considers climate change in the context of other defence and security trends, from geopolitical fragmentation and cyber threats to defence industries and developments in military strategy and technology